

**U. S. Seriously Concerned**

## ***Cold War May Spawn Weather-Control Race***

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Staff Reporter

The next hot fight on the Advisory Committee on cold-war front may well shape Weather Control. The 4-year up into an all-out scientific old special committee goes out race between this country and of existence on Dec. 31. Russia to work out ways to The committee, headed by control the world's weather, Capt. Howard T. Orville, USN

American scientists are seri- retired, is not expected to ask ously concerned that the So- its own continuation. It will viets may win the race, gain- most likely recommend that ing a fair-weather monopoly; its functions be turned over for themselves and weather to the National Science Foun- extremes for this continent. dation with increased powers.

The gun to alert the United The report, still under States that the race is on is wraps, may not even mention expected to be fired at the Russia, but its warnings will end of this month in the swan- be clear that if the United! song report of the 11-member See CONTROL, A2, Col. 1

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# Race to Control Weather Seen as Next Cold-War Move

tes is to gain any mastery of weather this country st pour money and brains meteorological research. Excepting some mild bene- reported from cloud-seed- techniques to induce rain, this country lacks search bases to back up the nittedly wild conjectures weather control — more itely called weather mod- on. The weather control emes range from methods break up hurricanes and nados to others designed change whole climates ey include: Spraying vast areas of an snowfields with lamp- ck that would absorb her that reflect sunshine to it the icecaps. Spreading chemicals es) over surfaces of the ribbean Sea and the Gulf of xico to better induce eva- tion processes and help sun pull mountainous ds of moisture from these ters. Cutting off mountain tops otherwise leveling whole ges of present peaks, a pro- ous task that would change ole climate patterns. Towing Arctic ice fields thward in the oceans to it and change ocean tem- atures known to have im- tant influences on the rid's weather. Heating up the polar ice- s with atomic oven heat- res. The Antarctic is the rid's present icebox, and if doors were wedged open h atomic heat world wind terns might change dra- ully. more immediate, but dar- scheme to modify one of ire's vile tricks. Hurri- ex may be tried by the S Weather Bureau sci- sts next spring or fall. It id involve spraying fuel on the ocean surface along side of a hurricane's move- nt, and setting the oil on he heat of the burning fuel, ording to Francis W. Reich- er, longtime chief of the ther bureau, might alter fury or at least change the rse of the hurricane. Reich- erfer said he would recom- nd a test of this idea on a size hurricane scale.

**Results Uncertain**

The ultimate benefits of a atep-off between away m lant, he said, simply jus- such texts. Chief Reichelderfer said is some scientific basis. Altering the heat pattern hurricanes would draw air ulation from its inner es. Whether this effect id actually break up the ricane, or slow it down, or ge its course remains to shown by the proposed s. conceivably, he admitted, burning fuel oil might in- se a hurricane's forces, or results might be too un- ictable for practical use. eather scientists still go at reminders of the r officially admitted hur- ne-seeding experiment of

ortly after that attempt- eak up a hurricane by ing a small portion of it rain-making chemicals- tory goes, the hurricane only veered into the

United States, leaving a trail of heavy storm damage. Later detailed studies of the hurri- cane's course showed that it followed a normal pattern, and that the cloud-seeding, if any, had not changed its course the least bit.

## Knowledge "Abysmal"

The incident illustrates that the present state of the sci- ence of meteorology is unpre- pared to tackle the seemingly wild schemes that have been proposed to control or modify weather. As Reichelderfer says, man's knowledge of the basic mechanics of weather is abysmal, and, he said, this is as true in Russia as it is in this country.

The Weather Bureau chief said he has had as much if not more contact with Soviet meteorologists as any weather- man this side of the Iron Cur- tain. Today's only cause for concern, he said, is that Russia is speeding up and expanding basic research in meteorology, training far more new mete- orologists today than are being attracted to the science in the United States.

The Russians, like us, have carried on some modest cloud-seeding experiments, with just about the same results as we have gotten," Reichelderfer said. "Neither they nor we have any actual experiments underway to drastically modi- fy weather or weather pat- terns."

The chief deterrent to ac- tual attempts to change cli- mate patterns is, of course, the real fear that such chang- ings may worsen rather than better one's own weather.

## Flooding Possible

Diverting the course of the Gulf Stream, whose warm waters benefit both this coun- try and the British Isles, is at least theoretically possible. But, as one meteorologist put it, it would make no one happy if in that diverting Washing- ton got London's weather and London Washington's.

Similarly, man's attempts to melt polar ice won't be at- tempted until scientists can foresee with reasonable ac- curacy what the overall ef- fects of that melting will be. One already estimated effect is that if all the ice around both poles were turned to water the ocean levels would rise some 100 to 200 feet, inun- dating coastal cities all over the world—without and within the Iron Curtain.

Other, perhaps even more dire effects of man-made weather changes, such as those which might change the patterns of prevailing winds over earth's surfaces, are un- known for lack of basic infor- mation of the mechanics of at- mospheric motions.

A weather change that might transform present des- erts into farmlands also might desolate present world bread- baskets.

Although the special Ad- visory Committee on Weather Control spent most of its time and attentions on evalu- ating rain-seeding efforts its final report is expected to recommend that the Govern- ment, through the National Science Foundation, promote basic research in meteorology at a much greater rate than current studies.

More specifically, the re- port will undoubtedly call the Nation's attention to the ur- gent need for support of long- term weather study projects. Such studies, some requiring years if not decades to com- plete, are needed before man can sensibly tamper with cli- mate control.

Along these lines, the com- mittee will likely ask that the National Science Foundation be given a free and liberal hand to promote studies on such subjects as:

- What natural processes are involved in rain or snow formation and precipitation?
- How do disturbances on the surface of the sun affect earth's weather?
- Which weather factors do, and which do not, affect at- mospheric circulation on a world-wide basis?

- What is the role of elec- tricity in weather?
- What gives birth to torna- dos and hurricanes, and why do they behave as they do?

The answers to all of these questions cannot be obtained without basic research.

It would not be unreason- able for the Committee to bolster its final report with re- cent statements by a number of scientists urging the United States to go all out in weather control studies.

Vannevar Bush, now chair- man of the corporation of the Massachusetts Institute of Technology and wartime head of the Office of Scientific Re- search and Development, on Dec. 2 stated:

"We do not know whether it will be practically feasible for man to control the weath-

er, or favorably alter the cli- gen bomb scientist, befo- mate in which he lives . . . It is entirely possible, were he wise enough, that he could

produce favorable effects, per- haps of enormous practical significance, transforming his environment to render it more salutary for his purposes. "By all means let us get at it."

## Says Control Essential

Henry G. Houghton, MIT meteorologist, speaking on the need to come up first with the answers to weather control, told the First National Con- ference on Applied Meteorol- ogy:

"I shudder to think of the consequences of a prior Rus- sian discovery of a feasible method of weather control . . . International control of declared weather modification will be essential to the safety of the world as control of nuclear energy now is.

"Unless we remain ahead or abreast of Russia in mete- orology research the prospects for international agreements on weather control will be poor indeed."

Perhaps the Advisory Com- mittee will remind those it seeks to influence of the words of Edward Teller, the hydro-

Said Teller: "Please n- a world in which the R- can control weather in scale where they can the rainfall over Russ- that—and here I am, about a very definite s- might very well in the rainfall in our cou- an adverse manner. Th- say, we don't care. I- sorry if we hurt you. I- merely trying to do s- need to do in order to people live."

The late atomic ma- clan, John von Neuman- discussion on the fan- sian discovery of a feasi- facts which could be pi- method of weather control . . . by changing climate p-

International control of declared weather modification will be essential to the safety of the world as control of nuclear energy now is.

Such intervention, he- would merge each- affairs with those of other more thorough- the threat of a nuclear other war may alrea- done."

The next war clouds- truly atmospheric.